

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1. (currently amended) A method for transmymocardial coronary revascularization, said method comprising the steps of:

- a) creating a bloodflow passageway that extends through myocardial tissue between a chamber of the heart and a coronary vein such that blood will flow from the chamber of the heart, through the bloodflow passageway and into the coronary vein; and
- b) causing the blood that flows from the chamber of the heart, through the bloodflow passageway and into the coronary vein to flow through the coronary vein in a direction opposite normal venous blood flow; and
- c) placing an intraluminal valving apparatus within the lumen of the coronary vein, said intraluminal valving apparatus having an opening through which blood emanating from the bloodflow passageway may flow and at least one occluder member that is alternately moveable between i) an open position whereby systolic blood is permitted to pass from the bloodflow passageway into the lumen of the coronary vein, and ii) a closed position whereby blood is prevented from backflowing from the lumen of the coronary vein into the bloodflow passageway.

Claim 2. (canceled)

Claim 3. (withdrawn) The method of Claim 1 wherein said coronary vein is situated next to a coronary artery, and wherein said method further comprises the step of:

b) forming a fistulous connection between said coronary vein and said adjacent coronary artery, at a location which is downstream of said transmyocardial bloodflow passageway, such that blood may flow from the chamber of the heart, through said transmyocardial bloodflow passageway, through said vein, through said fistulous connection, and into the adjacent coronary artery so as to provide enhanced bloodflow through said coronary artery.

Claim 4. (withdrawn) The method of Claim "3" wherein said fistulous connection is a secondary bloodflow passageway which extends from said coronary vein to said coronary artery.

Claim 5. (previously amended) The method of Claim 1 wherein Step b comprises blocking the lumen of the coronary vein at a location proximal to the location at which the bloodflow passageway enters the coronary vein, thereby causing the blood that enters the coronary vein from the bloodflow passageway to flow through the coronary vein in a direction that is opposite normal venous blood flow.

Claim 6. (previously amended) The method of Claim 5 wherein the lumen of the coronary vein is blocked by placing an embolic member within the lumen of the coronary vein.

Claim 7. (previously amended) The method of Claim 5 wherein the lumen of the coronary vein is blocked by placing an intraluminal valving apparatus within the lumen of the coronary vein, said intraluminal valving apparatus being alternately disposed in i) an open configuration which allows blood to flow through the lumen of the coronary vein in the direction of normal venous blood flow and ii) a closed configuration which prevents blood from flowing through the lumen of the coronary vein in the direction of normal venous bloodflow, said intraluminal valving apparatus being constructed to remain in its closed configuration until the pressure of blood within the lumen of the coronary vein distal to the intraluminal valving apparatus exceeds a predetermined maximum pressure, at which time the intraluminal valving apparatus will transition to its open configuration.

Claim 8. (withdrawn) The method of Claim 1 further comprising the step of:

connecting an elastic closure member to cardiac tissue on either side of said transmyocardial bloodflow passageway, said elastic closure member being alternately transitionable between:

- i) a stretched configuration whereby said transmyocardial bloodflow passageway is opened to permit blood to flow from said transmyocardial bloodflow passageway into said coronary vein; and
- ii) a retracted configuration whereby said transmyocardial bloodflow passageway is substantially blocked so as to prevent blood from backflowing from said coronary vein into said transmyocardial bloodflow passageway.

Claim 9. (withdrawn) The method of Claim 16 wherein said elastic closure member comprises a suture which is formed of elastic material, said suture being threaded through said myocardial tissue on opposite sides of said transmyocardial bloodflow passageway.

Claim 10. (withdrawn) The method of Claim 1 further comprising the step of:

b) placing an intracardiac valving apparatus within the chamber of the heart, adjacent one end of said transmyocardial bloodflow passageway, said intracardiac valving apparatus being alternately deployable in:

- i) an open position whereby bloodflow is permitted to pass through the transmyocardial bloodflow passageway in a first direction; and,
- ii) a closed position whereby blood is prevented from backflowing through the transmyocardial bloodflow passageway, in a second direction, said second direction being opposite said-first direction.

Claim 11. (withdrawn) The method of Claim 1 further comprising the step of:

c) forming an endogenous tissue valve which is alternately moveable  
between:

i) an open position whereby bloodflow is permitted to pass from  
said transmyocardial bloodflow passageway and through the lumen of said  
coronary vein, in a perfusion direction; and,

ii) a closed position whereby said tissue valve will prevent blood from  
flowing from the coronary vein into said transmyocardial bloodflow passageway, in a  
backflow direction.

Claim 12. (withdrawn) The method of Claim 1 further comprising the step of:

c) forming an endogenous tissue valve which is alternately moveable  
between:

i) an open position whereby bloodflow is permitted to pass from  
said transmyocardial bloodflow passageway and through the lumen of said  
coronary vein, in a perfusion direction; and,

ii) a closed position whereby said tissue valve will prevent blood from  
flowing from the coronary vein into said transmyocardial bloodflow  
passageway, in a backflow direction.

Claim 13. (withdrawn) The method of Claim 12 wherein said tissue valve is formed at the junction  
of the transmyocardial bloodflow passageway and the coronary vein

Claim 14. (withdrawn) The method of Claim 13 wherein the tissue valve comprises at least one  
segment of the coronary vein in combination with at least one underlying segment of myocardial  
tissue.

- c) forming an endogenous tissue valve which is alternately moveable between:
  - i) an open position whereby bloodflow is permitted to pass from said transmyocardial bloodflow passageway and through the lumen of said coronary vein, in a perfusion direction; and,
  - ii) a closed position whereby said tissue valve will prevent blood from flowing from the coronary vein into said transmyocardial bloodflow passageway, in a backflow direction.

Claim 12. (withdrawn) The method of Claim 1 further comprising the step of:

- c) forming an endogenous tissue valve which is alternately moveable between:
  - i) an open position whereby bloodflow is permitted to pass from said transmyocardial bloodflow passageway and through the lumen of said coronary vein, in a perfusion direction; and,
  - ii) a closed position whereby said tissue valve will prevent blood from flowing from the coronary vein into said transmyocardial bloodflow passageway, in a backflow direction.

Claim 13. (withdrawn) The method of Claim 12 wherein said tissue valve is formed at the junction of the transmyocardial bloodflow passageway and the coronary vein

Claim 14. (withdrawn) The method of Claim 13 wherein the tissue valve comprises at least one segment of the coronary vein in combination with at least one underlying segment of myocardial tissue.

Claim 15. (withdrawn) The method of Claim 14 wherein at least one segment of coronary vein

and the at least one segment of underlying tapered segment of myocardial tissue which form said tissue valve are sized and configured such that, when systolic blood pressure is created within said transmyocardial bloodflow passageway, said tissue valve will move to its open position, and thereafter when diastolic blood pressure is present in said transmyocardial bloodflow passageway, said tissue valve will move to its closed position.

Claim 16. (withdrawn) The method of Claim 1 further comprising the step of:

connecting an elastic closure member to cardiac tissue on either side of said transmyocardial bloodflow passageway, said elastic closure member being alternately transitionable between:

- i) a stretched configuration whereby said transmyocardial bloodflow passageway is opened to permit blood to flow from said transmyocardial bloodflow passageway into said coronary vein; and
- ii) a retracted configuration whereby said transmyocardial bloodflow passageway is substantially blocked so as to prevent blood from backflowing from said coronary vein into said transmyocardial bloodflow passageway.

Claim 17. (withdrawn) The method of Claim 16 wherein said elastic closure member comprises a suture which is formed of elastic material, said suture being threaded through said myocardial tissue on opposite sides of said transmyocardial bloodflow passageway.

Claim 18. (withdrawn) The method of Claim 1 further comprising the step of:

b) placing an intracardiac valving apparatus within the chamber of the heart, adjacent one end of said transmyocardial bloodflow passageway, said intracardiac valving apparatus being alternately deployable in:

- i) an open position whereby bloodflow is permitted to pass through the transmyocardial bloodflow passageway in a first direction; and,

ii) a closed position whereby blood is prevented from backflowing through the transmyocardial bloodflow passageway, in a second direction, said second direction being opposite said-first direction.

Claim 19. (withdrawn) The method of Claim 18 wherein said transmyocardial bloodflow passageway is intended to provide a flow of blood from the chamber of the heart to the coronary vein, and wherein said first direction is the direction extending from the chamber of the heart to the coronary vein, and said second direction is the direction extending from the coronary vein to the chamber of the heart.

Claim 20. (withdrawn) The method in Claim 18 wherein said transmyocardial bloodflow passageway is intended to drain blood from the coronary vein into the chamber of the heart, and wherein said first direction is the direction extending from the coronary vein to the chamber of the heart, and said second direction is the direction extending from the chamber of the heart to the coronary vein.

Claim 21. (withdrawn) The method of Claim 18 wherein the intracardiac valving apparatus provided in step b is attached to the wall of the chamber of the heart, and is positioned over the opening formed in the chamber of the heart by said transmyocardial bloodflow passageway.

Claim 22. (withdrawn) The method of Claim 21 wherein said intracardiac valving apparatus is sutured to the wall of the chamber of the heart.

Claim 23. (withdrawn) The method of Claim 21 wherein said intracardiac valving apparatus is adhered to the wall of the chamber of the heart.

Claim 24. (withdrawn) The method of Claim 1 further comprising the step of:

b) placing a protrusive stent within said transmyocardial passageway, such that said protrusive stent extends into said coronary vein.

Claim 25. (withdrawn) The method of Claim 24 wherein said protrusive stent is uncovered.

Claim 26. (withdrawn) The method of Claim 24 wherein said protrusive stent is at least partially covered.

Claim 27. (withdrawn) The method of Claim 24 wherein said protrusive stent incorporates at least one valve to intermittently block blood flow, in at least one direction, through said transmyocardial passageway.

Claim 28 - 82 (canceled)

Claim 83. (currently amended) The method of Claim 1 ~~wherein the further comprising the step of:~~  
~~—e)—placing an intraluminal valving apparatus within the lumen of the coronary vein, said intraluminal valving apparatus comprising~~ has a generally cylindrical body and ~~having~~ an axial bore which extends longitudinally therethrough and wherein said at least one occluder member is positioned within said axial bore, ~~said at least one occluder member being alternately moveable between: i) an open position whereby systolic blood is permitted to pass from the bloodflow passageway into the lumen of the coronary vein, and ii) a closed position whereby blood is prevented from backflowing from the lumen of the coronary vein into the bloodflow passageway.~~

Claim 84. (currently amended ) The method of Claim 83 wherein the opening through which blood emanating from the bloodflow passageway may flow ~~intraluminal valving apparatus further~~ comprises a side aperture formed in the generally cylindrical body of said intraluminal valving apparatus, and wherein said side aperture is alignable ~~aligned~~ with the bloodflow passageway such that blood from the bloodflow passageway may flow through said side aperture and into the axial



bore of the intraluminal valving apparatus.

Claim 85. (currently amended) The method of Claim ~~84~~ 83 wherein said at least one occluder member is configured to close off said side aperture when in its closed position, such that a subsequent increase in blood pressure within the bloodflow passageway will move said occluder member to said open position, thereby reopening said side aperture.

Claim 86. (previously presented) The method of Claim 85 wherein said at least one occluder member is positioned within the axial bore of the intraluminal valving apparatus such that during systole, bloodflow which passes from the bloodflow passageway into the axial bore of the intraluminal valving apparatus will force the occluder member to its open position thereby allowing bloodflow from the bloodflow passageway into the lumen of the coronary vein and, thereafter, during diastole, the occluder member will move to its closed position, thereby preventing blood from backflowing from the lumen of the coronary vein into the bloodflow passageway.

Claim 87. (previously presented) The method of Claim 84 wherein the intraluminal valving apparatus further comprises a blocking member which closes off the axial bore of the intraluminal valving apparatus proximal to said side aperture.

Claim 88. (previously presented) The method Claim 84 wherein the intraluminal valving apparatus further comprises a secondary occluder member that closes off the axial bore of the intraluminal valving apparatus proximal to the side aperture.

Claim 89. (currently amended) The method of Claim ~~83~~ 1 wherein the intraluminal valving apparatus is positioned within the coronary vein at a location distal to the location at which the bloodflow passageway enters the coronary vein, and wherein said at least one occluder member permits blood to flow through the lumen of the coronary vein in a direction opposite normal venous

flow when said at least one occluder member is in its open position, and to prevent blood from backflowing through the coronary vein in the direction of normal venous flow when said at least one occluder member is in its closed position.

Claim 90. (currently amended) The method of Claim 83 1 wherein two of said intraluminal valving apparatus are positioned in the lumen of the coronary vein, one of said valving apparatus being located proximal to the location at which the bloodflow passageway enters the coronary vein and the other of said valving apparatus being positioned distal to the location at which the bloodflow passageway enters the coronary vein.